

# MISSOURI CONSERVATIONIST

VOLUME 79, ISSUE 11, NOVEMBER 2018

SERVING NATURE & YOU





# HUNTERS, HELP US!



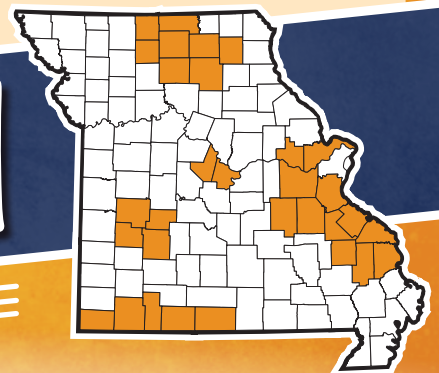
## MANDATORY CWD SAMPLING OF DEER OPENING FIREARMS WEEKEND IN 31 COUNTIES

Bring your deer  
to a sampling  
station near you.

The 31 mandatory CWD sampling counties are:

Adair, Barry, Bollinger, Cape Girardeau, Cedar, Cole, Crawford, Franklin, Grundy, Hickory, Jefferson, Knox, Linn, Macon, Madison, McDonald, Mercer, Moniteau, Ozark, Perry, Polk, Putnam, St. Charles, St. Clair, St. Francois, Ste. Genevieve, Stone, Sullivan, Taney, Warren, and Washington.

# NOVEMBER 10-11



Get information on chronic wasting disease and sampling locations at [MDC.MO.GOV/CWD](http://MDC.MO.GOV/CWD), or in the *2018 Fall Deer & Turkey Hunting Regulations and Information* booklet available where permits are sold.



# Contents

NOVEMBER 2018  
VOLUME 79, ISSUE 11

10



16



## FEATURES

### 10 Thriving Private Wetlands for Wildlife

Borrowing nature's pattern for building or renovating marshes.

by Bill Graham

### 16 White-Tailed Deer and the Wild Places They Shape

A keystone species, deer are indicators of a healthy ecosystem.

by Bill Graham

### 22 Missouri Managed Woods Program

Working with landowners to care for Missouri's forests.

by Steve Westin

## DEPARTMENTS

- 2 Inbox
- 3 Up Front With Sara Parker Pauley
- 4 Nature Lab
- 5 In Brief
- 28 Get Outside
- 30 Places To Go
- 32 Wild Guide
- 33 Outdoor Calendar



Lesser scaup

## MISSOURI CONSERVATIONIST



### ON THE COVER

White-tailed deer

**NOPPADOL PAOTHONG**

300-800mm lens, f/5.6  
1/125 sec, ISO 1600

### GOVERNOR

Michael L. Parson

### THE CONSERVATION COMMISSION

**CHAIR** Marilyn J. Bradford

**VICE CHAIR** David W. Murphy

**SECRETARY** Nicole E. Wood

**MEMBER** Don C. Bedell

### DIRECTOR

Sara Parker Pauley

### DEPUTY DIRECTORS

Mike Hubbard, Aaron Jeffries,

Jennifer Battson Warren

### MAGAZINE STAFF

#### EDITOR

Angie Daly Morfeld

#### ASSOCIATE EDITOR

Bonnie Chasteen

#### STAFF WRITERS

Larry Archer, Heather Feeler,

Kristie Hilgedick, Joe Jerek

#### CREATIVE DIRECTOR

Stephanie Thurber

#### ART DIRECTOR

Cliff White

#### DESIGNERS

Les Fortenberry, Marci Porter

#### PHOTOGRAPHERS

Noppadol Paothong, David Stonner

#### CIRCULATION MANAGER

Laura Scheuler

[mdc.mo.gov/conmag](http://mdc.mo.gov/conmag)



Download this  
issue to your  
phone or tablet at  
[mdc.mo.gov/mocon](http://mdc.mo.gov/mocon).



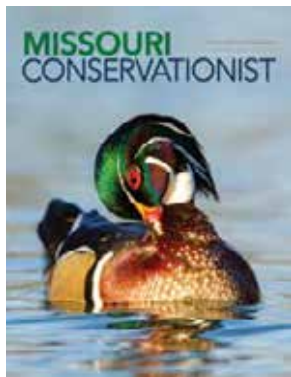
# Inbox



## Letters to the Editor

Submissions reflect readers' opinions and may be edited for length and clarity. Email [Magazine@mdc.mo.gov](mailto:Magazine@mdc.mo.gov) or write to us:

MISSOURI  
CONSERVATIONIST  
PO BOX 180  
JEFFERSON CITY, MO 65102



## SEPTEMBER COVER

The cover photo on your September 2018 issue is, so far, my favorite photo by Noppadol Paothong. All the beautiful detail and expression on the wood duck are beyond words. Thank you!

Trudy David  
Pottersville

## FOR THE LOVE OF PHOTOS AND NATURE

I love your magazine! I look forward to the pictures by Noppadol Paothong. He takes the most amazing pictures and they are so beautiful. Thank you for teaching us about nature in our state.

Cheryl Landers La Tour

## PECK RANCH

What a fine article about Peck Ranch in your September issue [*Peck Ranch: A Drive-Through of Living History*, Page 11]. Years ago, I had the pleasure of deer hunting there several times. Back then, it was called Peck's Wildlife Ranch (W.R.). I was fortunate to harvest a 10-point buck. During my trips to Peck's W.R., I saw striped skunks and fox squirrels while hunting off old logging roads. I am 76 years old and my father received the *Missouri Conservationist* when I was in grade school, when it had a section on various Missouri mammal skull drawings and snow footprints on the last page. Good memories.

Dave Rohan Pacific

## FOND MEMORIES

Tears of gratitude arose in my eyes as I read the September issue's *Up Front* [Page 3], remembering the world of memories family and friends have created, from early childhood to old age, as we fished; hunted for mushrooms, walnuts, blackberries; swam in the beautiful streams and pools; walked in the woods; and a lifetime of other memories.

Martha Kincaid St. Charles

## WHAT IS IT?

We love the *What Is It?* photo every month. It's the first thing my husband and I flip to when the magazine arrives. Then we debate what it is. Is it an antenna from a bug? Is it a toenail from a turtle? We're correct about 50 percent of the time, which only makes the reveal more fun. Thank you for that aspect of the magazine.

Madonna Laws-Lowell St. Louis County

## MISSOURI CONSERVATIONIST

I have gotten the *Missouri Conservationist* for years. You just keep getting better. I just loved the great outdoors as a young boy. I used to hunt squirrels most of the time. But a big part was just being out in the big old woods. Keep up the great work!

John Shipman Mount Vernon

When your magazine comes through the slot in my front door, all else comes to a halt. What will I learn that I didn't already know? Articles on feral hogs, catfish, mussels, crayfish, snakes, turtles, etc. These articles are well written for people of all ages. And the photos are fantastic and appeal to and capture the attention of people too young to read or might not have time to stop and read. I keep the *Missouri Conservationist* and other wildlife magazines in our school library at Prairie Elementary School in Prairie Village, Kansas. What a wonderful, informative, educational, colorful, well-written magazine.

David Wallace Overland Park, KS

I absolutely love getting the magazine on my iPad. It's like having the magazine without using the paper and postage, and I never lose it. Thanks for all you do for our state's wildlife and great outdoors in general.

Teresa Schlobohm via email

Thank you for your great magazine! The photos are amazing and articles so interesting, I am extremely impressed by the quality of the magazine. I'm not a hunter or an angler, but love to learn about conservation. I recommend the magazine to family and friends and always pass it on to others to enjoy. Please continue to educate and entertain us with this greatly valued magazine. I learn something new with every issue and appreciate your inclusion of kids articles.

Judy Sepac Manchester

## Connect With Us!



/moconservation



@moconservation



@MDC\_online  
@Nature\_Videos

## Conservation Headquarters

573-751-4115 | PO Box 180, Jefferson City, MO 65102-0180

## Regional Offices

Southeast/Cape Girardeau: 573-290-5730

Central/Columbia: 573-815-7900

Kansas City: 816-622-0900

Northeast/Kirksville: 660-785-2420

Southwest/Springfield: 417-895-6880

Northwest/St. Joseph: 816-271-3100

St. Louis: 636-441-4554

Ozark/West Plains: 417-256-7161

## Have a Question for a Commissioner?

Send a note using our online contact form at [mdc.mo.gov/commissioners](http://mdc.mo.gov/commissioners).





### Want to see your photos in the Missouri Conservationist?

Share your photos on Flickr at  
[flickr.com/groups/mdcreaderphotos-2018/](https://www.flickr.com/groups/mdcreaderphotos-2018/),  
email [Readerphoto@mdc.mo.gov](mailto:Readerphoto@mdc.mo.gov),  
or include the hashtag #mdcdiscovernature  
on your Instagram photos.



1

1 | Northern  
flicker by  
**Kathy Stewart**,  
via email

2 | Raccoon by  
**Michaelmerig**,  
via Instagram

3 | Cedar  
berries by  
**Peter Catalano**,  
via Flickr



2



3

### MISSOURI CONSERVATION COMMISSIONERS



Don  
Bedell



Marilynn  
Bradford



David  
Murphy



Nicole  
Wood



# Up Front

with Sara Parker Pauley

✱ If I had to choose a favorite holiday, it would be Thanksgiving. Each year, my mother's family would gather at Granny's farm for the big day. Somehow Granny would have cooked an amazing meal for more than 50. Tackle football, walks with favorite cousins, eating way too much food, then happy exhaustion at day's end — it was the perfect homecoming.

I've taken up hosting duties since Granny's passing but thank goodness my relatives pitch in to feed the masses. The beauty of Thanksgiving is that everyone does their best to show up and break bread together. They all come back for the camaraderie, the retelling of family tales, and to celebrate what binds us, not what tears us apart. That's what family does.

A few weeks ago, MDC celebrated a homecoming of sorts with our partners — from agricultural groups to local governments to educational partners — some from nearby, others from counties away. More than 100 partners came together to talk about what we have in common, which is a strong desire to take care of nature and connect Missourians to it. We each have a different role in making it happen, but we focused on the connection points and celebrated those together. You'll see more examples of partners furthering conservation efforts in two articles this month on Pages 10 and 22.

So, happy Thanksgiving, conservation family! Thank you for showing up and bringing what you have to the table to further conservation in Missouri. After all, that's what family does.

*Sara Parker Pauley*

**SARA PARKER PAULEY**, DIRECTOR  
[SARA.PAULEY@MDC.MO.GOV](mailto:SARA.PAULEY@MDC.MO.GOV)

The *Missouri Conservationist* (ISSN 0026-6515) is the official monthly publication of the Missouri Department of Conservation, 2901 West Truman Boulevard, Jefferson City, MO (Mailing address: PO Box 180, Jefferson City, MO 65102.) **SUBSCRIPTIONS:** Visit [mdc.mo.gov/conmag](http://mdc.mo.gov/conmag), or call 573-522-4115, ext. 3856 or 3249. Free to adult Missouri residents (one per household); out of state \$7 per year; out of country \$10 per year. Notification of address change must include both old and new address (send mailing label with the subscriber number on it) with 60-day notice. Preferred periodical postage paid at Jefferson City, Missouri, and at additional entry offices. **POSTMASTER:** Send correspondence to Circulation, PO Box 180, Jefferson City, MO 65102-0180. Phone: 573-522-4115, ext. 3856 or 3249. Copyright © 2018 by the Conservation Commission of the State of Missouri.

Equal opportunity to participate in and benefit from programs of the Missouri Department of Conservation is available to all individuals without regard to their race, color, religion, national origin, sex, ancestry, age, sexual orientation, veteran status, or disability. Questions should be directed to the Department of Conservation, PO Box 180, Jefferson City, MO 65102, 573-751-4115 (voice) or 800-735-2966 (TTY), or to Chief, Public Civil Rights, Office of Civil Rights, U.S. Department of the Interior, 1849 C Street, NW, Washington, D.C. 20240.

Printed with soy ink



[mdc.mo.gov](http://mdc.mo.gov) 3

# Nature LAB

by Bonnie Chasteen

Each month, we highlight research MDC uses to improve fish, forest, and wildlife management.

## WATERSHED MANAGEMENT

### Stream Team Data

✱ **Ronna Haxby** leads **Stream Team #4325**. She is regional projects director for Ozarks Water Watch, an Ozarks-region nonprofit dedicated to preserving the water quality in the upper White River watershed. Haxby coordinates approximately 35 volunteers to monitor 20 sites.

"Many of our volunteers have level-two and a few have level-three training in Stream Team's Volunteer Water Quality Monitoring (VWQM)," she said.

Dave Woods, a fisheries management biologist in MDC's Southwest Regional Office, knows he can trust Haxby's data. He and his management team use a variety of tools to assess the health of waterbodies in his region. These tools include fish and habitat sampling, land-use characterizations, and bridge inventories. When it comes to water quality monitoring, however, Woods' team relies on Haxby and other citizen scientists in the VWQM program.

"In some cases, we can easily use the existing data for our assessments," he said. "In others, we can partner with Stream Teams to take on a new sampling location to fill data gaps in the watershed."



Stream Team program staffers use a kick-net to sample water-dwelling invertebrates like this mayfly nymph, which can indicate water quality.



Volunteer program helps state agencies monitor water quality in Missouri's streams and lakes

To participate in the VWQM program, Stream Team volunteers must learn how to survey aquatic invertebrates as well as measure dissolved oxygen, pH, water clarity, conductivity, nutrients (nitrate, ammonia, and phosphate), and stream discharge.

As a water-quality projects director and a VWQM program volunteer, Haxby appreciates the rigor of Stream Team training. "Stream Team requires retraining every three years to test skills and ensure that procedures are accurately done," she said.

## Stream Team VWQM Program at a Glance

### PROGRAM PARTNERS

MDC  
Missouri Department of Natural Resources (MoDNR)  
Conservation Federation of Missouri

**6,700** trained VWQM volunteers



### How MDC Uses VWQM Data

- Assess habitat improvement projects
- Investigate fish kills
- Education

### How MoDNR Uses VWQM Data

- Assess and list waterbodies as impaired
- Assess and remove waterbodies from the impaired list
- Establish allowable pollution levels
- Monitor allowable pollution levels

Learn more at [mostreamteam.org](http://mostreamteam.org)



# In Brief

News and updates from MDC



## ENJOY WINTER TROUT FISHING

BE SURE TO CHECK  
FOR SPECIAL AREA  
REGULATIONS  
BEFORE YOU FISH

➔ MDC staff are stocking more than 70,000 rainbow trout in urban-area lakes around the state for winter trout fishing beginning in early November. Stocking dates vary among locations. Many of these areas allow anglers to harvest trout as soon as they are stocked, while others are catch-and-release until Feb. 1. Find locations at [short.mdc.mo.gov/ZoH](https://short.mdc.mo.gov/ZoH).

The daily limit for catch-and-keep is four trout with no length limit. All Missouri residents over age 15 and under age 65 must have a fishing permit. All nonresidents over age 15 must have a fishing permit. To keep trout, all anglers, regardless of age, must have a Missouri trout permit. See *Permits* on Page 9 for purchasing information.

### MANDATORY CWD SAMPLING NOV. 10 AND 11 IN 31 COUNTIES

MDC is conducting mandatory chronic wasting disease (CWD) sampling Nov. 10 and 11 in 31 of the 48 counties in the CWD Management Zone.

The counties are Adair, Barry, Bollinger, Cape Girardeau, Cedar, Cole, Crawford, Franklin, Grundy, Hickory, Jefferson, Knox, Linn, Macon, Madison, McDonald, Mercer, Moniteau, Ozark, Perry, Polk, Putnam, St. Charles, St. Clair, St. Francois, Ste. Genevieve, Stone, Sullivan, Taney, Warren, and Washington. (Check out the map and other information on the inside front cover of the magazine.)

Hunters who harvest deer from these counties on opening weekend must take their deer — or the head with at least 6 inches of the neck in place — on the day of harvest to one of 61 CWD mandatory sampling stations. Deer may be presented at any mandatory sampling station.

To find sampling stations, visit [mdc.mo.gov/cwd](http://mdc.mo.gov/cwd) and look for *Mandatory CWD Sampling Nov. 10–11*.

MDC will also offer free voluntary CWD sampling and testing of deer harvested anywhere in the state throughout the entire deer hunting season, and hunters can also get free test results for their deer. Find locations and more information on voluntary CWD sampling at [mdc.mo.gov/cwd](http://mdc.mo.gov/cwd) under *Voluntary CWD Sampling All Season*.

CWD is an infectious and deadly illness for white-tailed deer and other members of the deer family, called cervids. There have been no known cases of CWD infecting people, but the Centers for Disease Control and Prevention (CDC) strongly recommends having deer tested for CWD if harvested in an area known to have cases of the disease. The CDC also recommends not eating meat from animals that test positive for CWD. Cases of CWD are relatively rare in Missouri, with 75 confirmed cases in free-ranging deer since the disease was first found in free-ranging deer in 2012. Learn more at [mdc.mo.gov/cwd](http://mdc.mo.gov/cwd).

### HELP LIMIT THE SPREAD OF CWD

Carcass parts from infected deer can spread chronic wasting disease (CWD). Deer may be infected even if they appear healthy. To help reduce the risk of spreading CWD, dispose of deer carcass parts by bagging and placing them in trash containers destined for a landfill, bury them near the site of harvest, or leave them on the immediate area where the deer was harvested and field dressed. Learn more at [mdc.mo.gov/cwd](http://mdc.mo.gov/cwd) under *Carcass Disposal*.

## Ask MDC

### Got a Question for Ask MDC?

Send it to [AskMDC@mdc.mo.gov](mailto:AskMDC@mdc.mo.gov)  
or call 573-522-4115, ext. 3848.

#### Q. Do bluebirds stay in Missouri all winter? How far do they migrate?

➔ As short-distance migrants, eastern bluebirds (*Sialis sialis*) don't undertake long journeys to wintering grounds in Central and South America. Instead, as temperatures dip and days grow shorter, smaller groups may flock up and shift, for example, from Iowa into northern Missouri or from southern Missouri into Arkansas.

According to State Ornithologist Sarah Kendrick, bluebirds are predators of grasshoppers and crickets, which they locate from a perch and pounce on, pinning them to the ground with their bills. They also eat beetles, bugs, caterpillars, spiders, and flying insects.

As the weather turns colder, the birds that winter in Missouri turn to other sources of food, such as the berries of cedars, poison ivy, and sumac plants.

Although some bluebirds in the northernmost part of

the species' range make true migration movements a few states south, most bluebird populations don't make large migration movements. These nonmigratory populations stick near their breeding areas all year, wandering the landscape in response to a variety of factors, Kendrick said.

"The movements of the year-round populations are fairly local," she explained. "Bluebirds tend to gather in small flocks in the winter and move around the landscape together looking for food and helping each other look out for predators."

By January, wintering flocks begin to break up. By February, pairs arrive on their breeding territories and begin territorial singing.

#### Q. During fall deer and turkey season, can I leave a ground blind or a tree blind unattended on MDC lands?

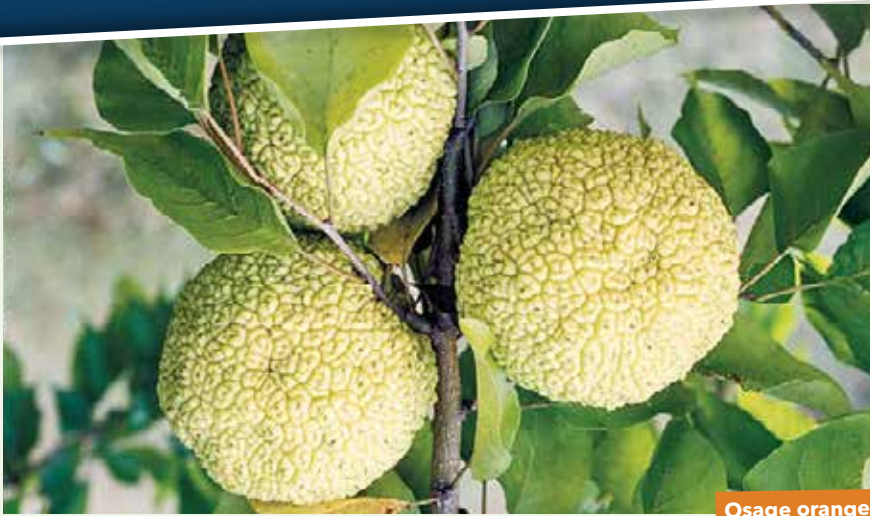
➔ Ground blinds — because they are typically lightweight and easy to pack in and out — must be removed daily.

Portable tree stands may be placed and used on conservation areas between Sept. 1 and Jan. 31. Unattended stands must be plainly labeled on durable material with the owner's full name and address or conservation number. However nails, screw-in steps, or any other



Eastern bluebird





Osage orange

material that would damage a tree is not allowed. Finally, all tree stands must be removed before Feb. 1.

**Q. We found Osage orange fruits gathered on our property. The ripe ones were torn in pieces and the green ones were still whole. What animal would eat them like that?**

➔ The most likely culprit is either an eastern fox squirrel or an eastern gray squirrel. Both species are known to tear apart these dense, gummy fruits — sometimes called hedge apples — to devour the seeds. Native to several Southern states, Osage orange (*Maclura pomifera*)

was probably introduced to Missouri when settlers planted these trees for use as windbreaks and as living hedgerows for livestock.

Both species of squirrels eat the fruit, although fox squirrels may eat it more often because they are more common residents of the upland grassland country where Osage orange fencerows are planted.

With their irregular crowns and stout thorns, these trees are sometimes considered a nuisance. However, Native Americans prized the heavy, decay-resistant wood for archery bows, which is why the species is also sometimes called bois d'arc.

## AGENT ADVICE

from

**Aaron Post**

PLATTE COUNTY  
CONSERVATION AGENT

Many Missouri hunters anxiously await the opening of firearms deer season. You're ready. Your permits are purchased, your stand is up, and you've checked your cameras more times than you can count. But do you have a post-hunt plan? This is an important step for the health of the landscape. Once processed, properly dispose of your deer carcass — wrap it in a trash bag and place it in a permitted landfill. If this is not possible, telecheck and quarter it at the harvest site and leave the carcass, preferably buried. This eliminates the spread of chronic wasting disease (CWD). For more disposal tips and CWD information, check out the *2018 Fall Deer and Turkey* booklet or visit [mdc.mo.gov/cwd](http://mdc.mo.gov/cwd).



## What IS it?

Can you guess this month's natural wonder?

The answer is on  
Page 9.





## East Campus Invasive Plant Volunteers

➔ In 2016, Columbia resident Jane Phillips rallied her neighbors to fight invasive bush honeysuckles in their East Campus neighborhood. On select Saturdays, they gather to cut honeysuckles from their own yards, and they help city staff clear invasives from adjoining parks. With help from MDC Private Land Conservationist Ryan Lueckenhoff, this residential effort was awarded a Wildlife Diversity grant. Funds pay a contractor to control large infestations on willing landowners' properties.

### She Reached Out

"I was really happy to get Jane's call," Lueckenhoff said. "We are here to help fight invasives, but it takes dedicated landowners like Jane and her neighbors to make a difference."

### In Her Own Words

"Once I cleared my own place," Phillips said, "I looked at the thicket around me and started thinking, this is futile. I've got to get some help. Seeing the neighborhood, the city, and the state all come together to tackle this project has been so rewarding."

by **Cliff White**



What's **your** conservation superpower?



## SHARE THE HARVEST

MDC and the Conservation Federation of Missouri (CFM) encourage deer hunters to share their harvests this deer season.

Share the Harvest allows deer hunters to donate their extra venison—from several pounds to whole deer—to participating meat processors who grind and package the deer meat. The packaged venison is then given to local food banks and food pantries for distribution to Missourians in need of food assistance.

Last deer season, thousands of Missouri deer hunters donated more than 289,200 pounds of venison to the program, including nearly 5,600 whole white-tailed deer. Since the program started in 1992, Share the Harvest has provided nearly 4 million pounds of lean, healthy venison.

Processing fees are covered entirely or in part by numerous local sponsors, along with statewide sponsors, including MDC, CFM, Shelter Insurance, Bass Pro Shops, Missouri Chapter Whitetails Unlimited, Missouri Chapter Safari Club International, Missouri Chapter National Wild Turkey Federation, Drury Hotels, Midway USA Inc., Missouri Deer Hunters Association, and Missouri Food Banks Association.

For more information, including participating processors, get a copy of the *2018 Fall Deer & Turkey Hunting Regulations and Information* booklet, available where permits are sold, and online at [short.mdc.mo.gov/Zoz](http://short.mdc.mo.gov/Zoz).

## Donating Deer From a CWD-Positive County

Deer donated to Share the Harvest must be tested for chronic wasting disease (CWD) if harvested from any of these 11 counties where CWD has been found: Adair, Cedar, Cole, Franklin, Jefferson, Linn, Macon, Perry, Polk, St. Clair, and Ste. Genevieve. These deer can only be donated through processors participating in the Share the Harvest CWD Testing Program and located in or near any of the 11 CWD-positive counties. For more information, including participating processors, visit [mdc.mo.gov/cwd](http://mdc.mo.gov/cwd) and look for *Sharing the Harvest*.

## GIVE THE GIFT OF NATURE

MDC's online Nature Shop makes holiday shopping a breeze. Offerings include the ever-popular *Natural Events Calendar*, plus a variety of books, CDs, DVDs, and more for all ages. Visit the shop online at [mdcnatureshop.com](http://mdcnatureshop.com), or check out October's *Missouri Conservationist* for the 2019 Nature Shop insert.

Holiday shoppers can also visit one of MDC's nature centers, located in Kirkwood, Cape Girardeau, Springfield, Kansas City, Blue Springs, and Jefferson City, for a surprising array of reasonably priced holiday gifts.

## Permits Make Great Gifts

Conservation makes Missouri a great place to hunt and fish, so permits make a great gift, too. Buy them from vendors across the state, online at [mdc.mo.gov/buypermits](http://mdc.mo.gov/buypermits), or through our mobile apps, MO Hunting and MO Fishing, available for download through Google Play for Android devices or the App Store for Apple devices.



## WHAT IS IT?

### ERUPTING COMMON MILKWEED SEED POD

The beautiful pink and white flowers of common milkweed (*Asclepias syriaca*) give way to large, elongated seed pods in the fall. When left to dry, the pods split and release hundreds of seeds, each attached to a "parachute" of white, silky, flossy hairs that carry them on the wind.





This summer, a pair of trumpeter swans chose this constructed wetland in north-central Missouri as a nesting site, one of the few confirmed successful trumpeter nests in the state since the 1800s. The owner-managed but natural-style wetland attracts a wide variety of waterfowl and shorebirds through the seasons.



# Thriving Private Wetlands for Wildlife

BORROWING NATURE'S PATTERN FOR BUILDING OR RENOVATING MARSHES

by Bill Graham | photographs by David Stonner







In autumn, Roland Lohmar gazes out his hunting cabin window at a wetland that is human-built, but one resembling what a flood-prone creek might have carved in the Grand River bottoms long ago. With help from MDC and the U.S. Department of Agriculture's Natural Resource Conservation Service (NRCS) wetland experts and money from programs devoted to wetlands, Lohmar hunts and watches wildlife where water depths and bank slopes are varied to boost plant diversity. Ducks and geese can cup their wings and glide in for a landing at an ideal resting and feeding place that is rich with natural foods. Shorebirds start migrating through in early fall, the retired doctor from Columbia said. Lohmar has hunted in the bottoms of Chariton County since his boyhood in 1941.

"We get them in numbers like we've never seen before," he said.

Waterfowl hunting is often a goal when landowners build or renovate wetlands. But nongame wildlife also benefits. In 1997, Mike McClure, MDC wetland services biologist, helped a landowner in Sullivan County develop

**Renovating a duck hunting pool into a more natural marsh topography has given Roland Lohmar more waterfowl and shorebirds to watch from his hunting shack in Chariton County, and better waterfowl hunting.**

marshes with financial help from the NRCS-administered Wetland Reserve Easement Program. This summer, that wetland hosted the second confirmed successful trumpeter swan nest in Missouri since the late 1800s. The young swans, called cygnets, are the first since 2005, when a pair of swans produced young at a farm pond in another northern county. This summer's cygnets are a rarity.

"To have these swans show up in Missouri, and especially in one of our projects, it's fantastic," McClure said. "It tells me we're providing some good stuff out there."

Joan FitzGerald wanted to follow the dream she and her late husband had of managing their farm for waterfowl. Plus, flooding near the Mississippi

River repeatedly damaged crops on her farm in the Portage des Sioux lowlands of northeast St. Charles County. So FitzGerald and farm manager Steve Schade made a change. With the help of expertise and cost-share funds from MDC and other agencies, FitzGerald and Schade converted low areas and fields to quality wetlands or grassland meadows. A 70-acre project recently completed has varied habitat they use for hunting and wildlife watching.

"We're not just focused on waterfowl and duck hunting," said Shawn Duckworth, an MDC wetland services biologist who helped FitzGerald. "We're focused on all wetland species for all seasons. Good wetland management can manage for all species and still have quality habitat come duck-hunting time."



## Partnership Power

Throughout Missouri, MDC private land wetland biologists work in partnership with the federal NRCS, the U.S. Fish and Wildlife Service (USFWS), and the nonprofit Ducks Unlimited (DU) to create, restore, or enhance wetlands on private land. They offer expertise in design and help landowners use programs that provide grants or cost-share funds. Marginal farmland, often flood-prone, becomes wetlands that help wildlife, improves water quality, reduces flooding, and enhances property values. All Missourians benefit.

The partnerships, McClure said, “have been a tremendous boost for wetland resources in the state.”

Those partnerships and funding they provide empower innovative approaches to wetland designs and renovations. The result is marshes with more benefits for wildlife, and water-control structures that are less prone to flood damage.

A typical approach in earlier decades was to put high levees around low spots in river bottoms to create standing lakes or pools flooded in autumn. Often, the water was too deep to benefit some waterfowl species. Also, levees to maintain those wetlands were often damaged by flooding from nearby rivers.

Lohmar’s 80 acres near Yellow Creek and the Grand River had some



MDC FILE PHOTO

Pools made with the old-style ring levees on the left are more susceptible to flood damage, and they offer less-varied plant species and water depth. On the right, broad berms made with borrowed soil create slough-like pools that mimic natural wetlands near streams. They let flood water flow over high points more easily and are less prone to damage. A variety of water depths in the pools enhances plant diversity, which provides waterfowl critical food during both fall and spring migrations. Plus, modern wetland designs look more natural to people enjoying them for hunting or wildlife watching.

old-style pools for waterfowl hunting. Adjacent to his property is the decades-old Bosworth Hunt Club, which also had an old wetland pool. McClure and Mick Hawkins, a soil conservation technician with NRCS, helped design and implement changes at both properties. Levees were lowered to become more like broad ridges, lowering overall water levels to a foot or less in many areas. Dabbling ducks such as mallards, pintails, and teal prefer shallow waters for feeding. Plants that grow in moist areas serve as food but also host

invertebrates such as insects or snails that ducks and geese eat.

Yet areas with deeper water were also created where dirt was excavated to grade out the broad ridges that replaced narrow levees. Those soil borrow pits were designed to mimic oxbows or sloughs that a meandering stream might leave after channel changes. Different plants grow in the deeper water, and those pools provide habitat for diving ducks such as scaup, canvasbacks, and mergansers. Trumpeter swans also prefer the deeper water.



### Constructing a Wetland

MDC and NRCS wetland experts can help private landowners develop wetland construction or renovation plans, such as how berms and water control structures are placed in relation to local stream hydrology and flood history. They will also flag plan layouts and work on-site with contractors to make sure plans are being followed correctly. Staff can also do follow-up visits in subsequent years to assist landowners with issues such as invasive species or clogged water control systems.





Flooding is normal in the low-lying river bottoms where wetlands occur. The broad ridges being incorporated into today's wetland construction or renovations are lower, with less pitch to their slope than historic narrow levee designs, and let flood water flow over more easily. The raised soil levels hold water where desired but suffer far less damage from severe floods, thus avoiding expensive repairs. They also create a more natural-looking wetland.

"Everything has been made to blend seamlessly with the flood plain," McClure said. "Floods can come over the top." The flowing water "doesn't have the energy or the destructiveness" as when

topping narrow, steep levees.

The higher ground gets attention, too, when a property is accepted as a wetland project eligible for financial assistance. A wet prairie, upland grassland, or hardwood forest may be established on drier acres, depending on the soil type.

As projects are designed, McClure said, "there's a lot of thought about what a landowner is going to do from a hunting or viewing standpoint."

### Funding Wetland Restoration

FitzGerald's farm in the Mississippi River bottoms had crop fields and a low place with timber when her family acquired the land in the 1960s. But the 1993 flood scoured a deep hole, which held water in the low spot. Flooding in years since posed problems for

adjacent crop fields. So, when she chose to develop a wetland on those acres, Duckworth helped design a project with a berm and a water-control gate to manage water levels.

The project was completed in 2017 and gives FitzGerald and Schade a wetland complex with varied wildlife habitat. She has a duck-hunting blind on the large pool at the scour hole as well as a new berm for a future blind at a smaller open area higher in the drainage. In between are bottomland timber and a shrubby area that can be flooded in wet seasons, providing sheltered places for ducks. Plus, some old crop fields that often flooded are now planted in native prairie cordgrass, upland prairie grasses, and wildflowers. The cordgrass has already survived some recent flooding. Wildlife has a variety of places to rest, nest, and feed.

"We're out here a lot just to watch wildlife," FitzGerald said.

Financial aid for wetland construction or renovation varies with the type of project and the programs being used. Projects may be partially or fully funded. Federal funds are available for

**Joan FitzGerald created a wetland for hunting and watching wildlife on her farm in St. Charles County. Financial assistance was available from state and federal programs for wetland construction and habitat improvements. MDC and NRCS staff helped plan and implement the project.**





wetland easements and improvements via the NRCS Agriculture Conservation Easement Program — Wetland Reserve Easements (ACEP-WRE), the Continuous Conservation Reserve Program, and the USFWS Partners for Fish and Wildlife Program. A partnership between federal, state, and private conservation entities cooperate to provide funds through the Missouri Agriculture Wetland Initiative. MDC also provides cost-share funds through the Landowner Assistance Program.

Money in those funds is limited, and not all projects that apply get funded in their year of application. But many do get approved and funded in time. FitzGerald's wetland complex is enrolled in the ACEP-WRE program. She received reimbursement for the easement value, cost-share for hydrology restoration, and cost-share for native grassland habitat restoration bordering the marsh. Prairie grasses are growing in old fields, and last autumn, FitzGerald and Schade watched hundreds of migrating wood ducks in the timbered area of the marsh.

"If it wasn't for his (Duckworth's) expertise," Schade said, "this probably wouldn't have come together."

## Ongoing Expertise

MDC biologists and NRCS personnel guide contractors hired to build berms or install water-control structures. They flag where dirt is to be moved and visit farms to check berm elevations and if work matches GPS points on the plans.

But wetland biologists also assist private wetland owners for years after projects are completed. They visit projects annually or semiannually. These visits give biologists a chance to meet with landowners on their property to provide recommendations on managing for optimal wildlife habitat. They also assist with any issues that have arisen, such as clogged water-control structures or invasive plant species.

McClure confirmed that trumpeter swans had nested successfully this summer in north Missouri when he visited the farm to evaluate the condition of the wetlands.

"Once a wetland is restored, it's managed by who owns it," McClure



said. "But we are there to give technical assistance in the management to help keep a wetland healthy and productive."

## Wetlands Benefit Owners and Wildlife

Wetlands enrolled in a conservation program provide benefits to wildlife far beyond the hunting seasons. Tommy Marshall, an MDC wetland services biologist in southeast Missouri, helps landowners with wetlands in conservation programs ranging from 40 acres to almost 2,000 acres. Those wetlands and others throughout the state are crucially important to waterfowl and shorebirds during spring migrations, when they are northward bound to their breeding grounds.

Wetlands are often established on the lowest ground that is naturally wet during spring rains. Designs for projects also help ensure water can be held on the site. Property owners are given water-management plans that encourage them to hold water for migrations and lower water in summer to encourage moist-soil plant growth. In spring, feeding ducks and shorebirds will gain protein from seeds such as wild millet or smartweed to give them muscle strength and fat reserves for flights north. Feeding on snails and insects also provides essential proteins and boosts calcium for egg production during nesting.

"We retain water in these wetlands,

and that's important for the spring migration," Marshall said. "With the diversity of native plants in them, we get a high invertebrate base."

A healthy wetland can add financial value to property. Waterfowl hunters seek out properties to buy or lease with marshes. But watching wildlife, from bald eagles to songbirds, also pulls people to wetlands.

Clint Pilcher and farm partners noticed the trumpeter swan pair staying in all seasons at their wetland, the marsh complex McClure helped design 21 years ago. They value hunting. But they were also thrilled this summer to see cygnets with the pair — proof of a successful nest for a majestic species that is endangered nationally and in Missouri.

"For us, it's a sign that the wetland continues to have diversity and fulfills the needs of waterfowl," Pilcher said. "We've seen thousands of ducks and geese and pelicans come through. During winter, we've seen as many as 100 trumpeter swans on the place. It's been pretty impressive. For us, the swans represent that the habitat is a place they feel safe and secure. We like that." ▲

---

*Bill Graham is MDC's Kansas City Region media specialist. He's a lifelong hunter, angler, and camper who also greatly enjoys hiking and photography in Missouri's best wild places.*



White-tailed deer help shape the plant and animal ecology around them as they browse, move, live, and die.

PHOTOGRAPH BY  
NOPPADOL PAOTHONG







# White-Tailed Deer

## and the Wild Places They Shape

---

A KEYSTONE SPECIES, DEER ARE INDICATORS  
OF A HEALTHY ECOSYSTEM

by Bill Graham





**M**any a mushroom seeker, hunter, or curious youth has walked into unfamiliar woods and encountered a bare-dirt trail. Often, they follow the path, pulled along by the trail's open route, through brush, up a ridge, or across a creek. Turkeys, foxes, and turtles use these pathways, too.

People and creatures owe easier passage on such trails to white-tailed deer. Missouri's most popular wild herbivore is a creature of habit, their hooves repeatedly pressing into soil and making paths along travel routes they find safe or easy for walking.

"They create an infrastructure for anyone or anything," said Joe DeBold, MDC urban wildlife biologist.

Deer help shape the wild places where they dwell in many other ways, too. A deer herd roaming a territory can influence species types and abundance — plants, trees, and animals — that people might see when they explore the outdoors. Deer are food for predators and scavengers. They provide nutrients for plants. Antlers shed by bucks in late winter are chewed on by field mice, which are preyed upon by owls. Deer are a keystone species, a species capable of profoundly affecting an ecosystem.

"They're one of the key indicators we have to know that nature's OK," DeBold said. "If we were to not see deer any more in Missouri, things would be drastically wrong."

### Restoring Deer to Nature's Balance

In the early 1900s, the state's deer numbers had dwindled to a small herd in the rugged southeastern Ozarks, survivors of over-hunting and habitat loss. Most Missourians never saw a deer or walked on a deer trail before voters authorized the Missouri Conservation Commission in 1936. MDC's science-based conservation efforts, along with citizen support, helped restore deer statewide. Today, whitetails are once again contributors to nature's life cycles in nearly every Missouri ecosystem.

**“If we were to not see deer any more in Missouri, things would be drastically wrong.”**

—JOE DEBOLD, MDC URBAN WILDLIFE BIOLOGIST



Restoring the state's deer herd was an early goal when Missouri voters approved a science-based conservation program in 1936. Today, MDC's goal in partnership with hunters and private landowners is a deer herd in balance with local habitats.

"Probably the biggest thing they do is browsing," said Barb Keller, MDC cervid program supervisor.

As they browse for food, deer can subtly or profoundly affect plant and tree species within a natural community. They are the largest wild herbivore that roams statewide, and in some seasons and locations, they feed together as a herd. They prefer native plants, and they selectively browse plants and nutritious twigs or stems. They can reduce dominance by certain plant species, giving other plants a chance to grow. Plant diversity increases insect diversity, including pollinators, and insects are crucial food for birds and other wildlife.

"Quite a bit of research shows if done at the right level, their browsing creates more plant diversity in a natural community," Keller said.

Deer promote plant diversity by spreading seeds. Undigested seeds in droppings can sprout in new places, and the feces provide fertility to boost growth. Plant seeds can stick to deer fur and be carried to new locations. Tick-trefoil provides great forage for deer, Keller said, and its seeds can stick to deer fur and ride to new

places, perhaps scraped off on grasses as a deer beds down for the night.

Deer also add to soil fertility. They eat greenery and drink water, and the feces and urine deposited daily helps plants and trees grow.



RESTORATION: MDC FILE PHOTO; TWO DEER, PATH: DAVID STONNER; FAWN: JIM RATHERT





Above: Deer trails often beckon hikers outdoors.

Left: Repeatedly following paths with protective cover or easy walking, deers create trails.

Right: As deer browse plants or tender twigs and buds, they influence the presence and abundance of species in a natural community. Studies show that a deer herd in balanced numbers increases plant species diversity, which also affects all wildlife in the community.







Hunting and natural predators such as bobcats (left) keep deer populations balanced. Deer also die of natural causes and become food for scavenger wildlife, from birds like vultures to insects such as carrion beetles.

## Keeping a Balance

Too many deer in an area can cause less diversity. Desirable native plants can be greatly reduced or eliminated from the ground cover. Deer also feed on buds and tender, moist limbs of shrubs and trees. In harsh winters, they will eat bark. That can set back the growth of young trees, such as oaks, needed for forest regeneration. In areas with overabundant deer, browse lines are sometimes visible where all understory plants and low limbs have been eaten in an area. This occurs most often in urban areas where predators are fewer and hunting opportunities are limited, letting herd numbers grow.

Keeping natural communities healthy with diverse plant life is one reason why it is important to keep deer numbers in balance with the carrying capacity of their habitat. Hunting is one of the main tools to control deer numbers. Hunters gain food, trophy antlers, and outdoor adventure. Special managed deer hunts in urban areas, like Kansas City's Rocky Point Glades in Swope Park, have helped bring deer numbers into balance in some locations, DeBold said.

Deer are also food for furbearing predators. Young fawns in spring and early summer often fall prey to bobcats, foxes,

black bears, or coyotes. Predators can also sense weak or diseased deer and remove them from the herd, boosting deer herd health, DeBold said. Those predators and their health are

MDC researchers have found that deer can have a home range of several hundred acres, but much of their time is spent in core areas with the best food and shelter.





important for the ecosystem, as they keep other species, such as rodents — field mice and wood rats — in balance.

Scavengers, such as turkey buzzards, bald eagles, crows, and carrion beetles, will feed on dead deer carcasses. Some fawns are stillborn or die soon after birth. Adult deer die due to age, disease, or accidents. They become important meals for scavengers.

Deer prove the axiom that nothing is wasted in nature. Buck deer shed their antlers in late winter. Mice and squirrels, being rodents, need something hard to chew on to wear down their teeth, so from the time of antler shedding in late winter they gnaw on antlers.

“From that they get calcium, and calcium makes them more nutritious for the creatures that eat them like hawks, owls, and foxes,” DeBold said.

## Where Deer Roam

The areas where deer affect ecology can be large or small. Deer can survive in small pockets of habitat in urban areas, but in rural areas they will move over wider ranges.

MDC biologists, in cooperation with the University of Missouri, are studying deer habits and survival in northwest Missouri and in the central Ozarks. They are trapping deer, outfitting them with GPS collars that communicate with satellites, and downloading data about their movements.

“There’s a lot of individuality in every deer that’s out there,” said Kevyn Wiskirchen, MDC private lands deer biologist.

In general, however, a buck deer will roam over 600 to 800 acres, Wiskirchen said. A doe will use 300 to 400 acres. At times deer are moving in herds. During fall rut, deer are moving more as individuals and at times will travel farther than usual through timber and fields.

“But within each home range, there will be a smaller core area where they spend most of their time near preferred bedding sites and high-quality forage,” he said. “Deer prefer edge-type habitats where there’s the greatest amount of diversity. They look for certain plants and plant parts as forage. They like newer growth that’s easier to digest. Even in a closed canopy forest, they’ll look for a place where a tree has fallen over and unusual plants have sprung up. They really like that diversity.”

In the large forests in the Ozarks, soft mast such as berries and hard mast such as acorns are critical foods to deer to help them prepare for winter. Mast feeds many other animals, too. Balance of deer numbers is important to ensure plants, shrubs, and trees

## Deer Disease Update

Missouri’s white-tailed deer herd is healthy when viewed on a statewide basis, said Barb Keller, MDC cervid program manager. But disease is a factor for deer numbers in local areas.

In 2012, dry conditions worsened a broad outbreak of hemorrhagic disease, a virus disease carried by a midge fly. When drought concentrates deer around water sources, disease transmission chances are increased.

“The 2012 outbreak hit the entire state hard,” Keller said. “The north Missouri population was hit particularly hard. That population is more vulnerable.”

Hemorrhagic disease, also called bluetongue, is more common in southern Missouri. Deer there have built up more antibodies and resistance to the disease. North Missouri deer contract the virus less frequently, thus they have less resistance when it arrives.

Deer populations in some areas of the state have rebounded to pre-2012 numbers, Keller said. But in many northwest Missouri neighborhoods, deer numbers are still down, which might also be due to habitat losses.

MDC is battling chronic wasting disease (CWD) in partnership with hunters and landowners. The fatal disease, associated with misshapen proteins called prions, is contagious and affects deer and other cervids. It causes brain damage and is progressive.



Mandatory testing in some counties with confirmed cases and culling deer near hotspots to reduce transmission chances appears to have helped limit the disease. During late 2017 and early 2018, MDC tested 24,500 deer for CWD and found 33 new cases. That brought the total number of cases to 75 since 2001, when the first case was discovered in northeast Missouri.

“We’re lucky in that I don’t think CWD has had a significant effect on our state’s overall population,” Keller said. “We have CWD in a wide geographical area. But so far we’ve seen the prevalence to be low.”

A healthy deer herd is important to Missouri. Deer hunting is a treasured family tradition. Hunters move a billion dollars through the state’s economy. Wildlife watchers value deer, and deer are an important component in natural ecological systems.

MDC will continue to work with partners to keep Missouri’s deer herd healthy. For more information, visit [short.mdc.mo.gov/Zch](http://short.mdc.mo.gov/Zch).

that provide mast grow sustainably, including young oaks.

“If the deer population is balanced and equal with habitat so carrying capacity is balanced, deer will help keep everything around them balanced as well,” DeBold said. ▲

*Bill Graham is MDC’s Kansas City Region media specialist. He’s a lifelong hunter, angler, and camper who also greatly enjoys hiking and photography in Missouri’s best wild places.*





Aerial view of Larry Strack's woods in August 2018. The large openings are where unhealthy black oak trees were removed last winter, making extra space for existing and new young trees to grow.

PHOTOGRAPH BY KEVIN MUENKS





# *Missouri* Managed Woods *Program*

WORKING WITH LANDOWNERS TO  
CARE FOR MISSOURI'S FORESTS

by Steve Westin

**T**o restore Missouri's forests after the great timber liquidation of the late 1800s and early 1900s, the state encouraged landowners to limit burning to promote tree growth. In 1946, the Forest Crop Land (FCL) program became law and provided technical and financial assistance to landowners who would sign up for 25 years and agree to stop burning their property.

Since then, Missouri's woods have changed. However, the importance of MDC staff working with private landowners has not. About 83 percent of Missouri's 15.4 million acres of forest is privately owned. These private woodlands provide benefits for all Missourians, including a sustainable flow of forest products and the compatible benefits of creating and maintaining wildlife habitat, maintaining forest health, conserving soil resources, protecting water quality and quantity, providing places for recreation, and protecting and enhancing watershed function and quality. Professional management enhances the quality and quantity of values that flow from the forest. The need for forest management is as great as it has ever been.



Well-managed woodlands provide quality raw materials for Missouri's forest products industry. The importance of this industry to the state's economy can hardly be overstated. In 2015, forest products, wood, lumber, paper and related industries contributed \$9.9 billion in direct and indirect benefits to the Missouri economy. These industries support nearly 47,000 jobs with an annual payroll of over \$2.3 billion.

MDC's Forestry Division has modified the 1946 FCL program to better fit with today's conditions and renamed it Missouri Managed Woods (MMW). Like FCL before it, MMW is an entirely voluntary program.

## Getting Started

MMW is designed to enhance the production of forest products and other forest values in Missouri by encouraging better management of privately owned forested lands. This is accomplished through services and property tax reduction. Landowners must carry out responsible, long-term forest management in exchange for the benefits of the program.

Upon approval, enrolled lands are assigned a lower property tax value, which lasts for 15 years. MDC will pay the county annually for each acre of designated MMW land to make up the difference in tax revenue. Land may be reenrolled in the program after the initial 15-year enrollment period is completed.

## Start With a Plan

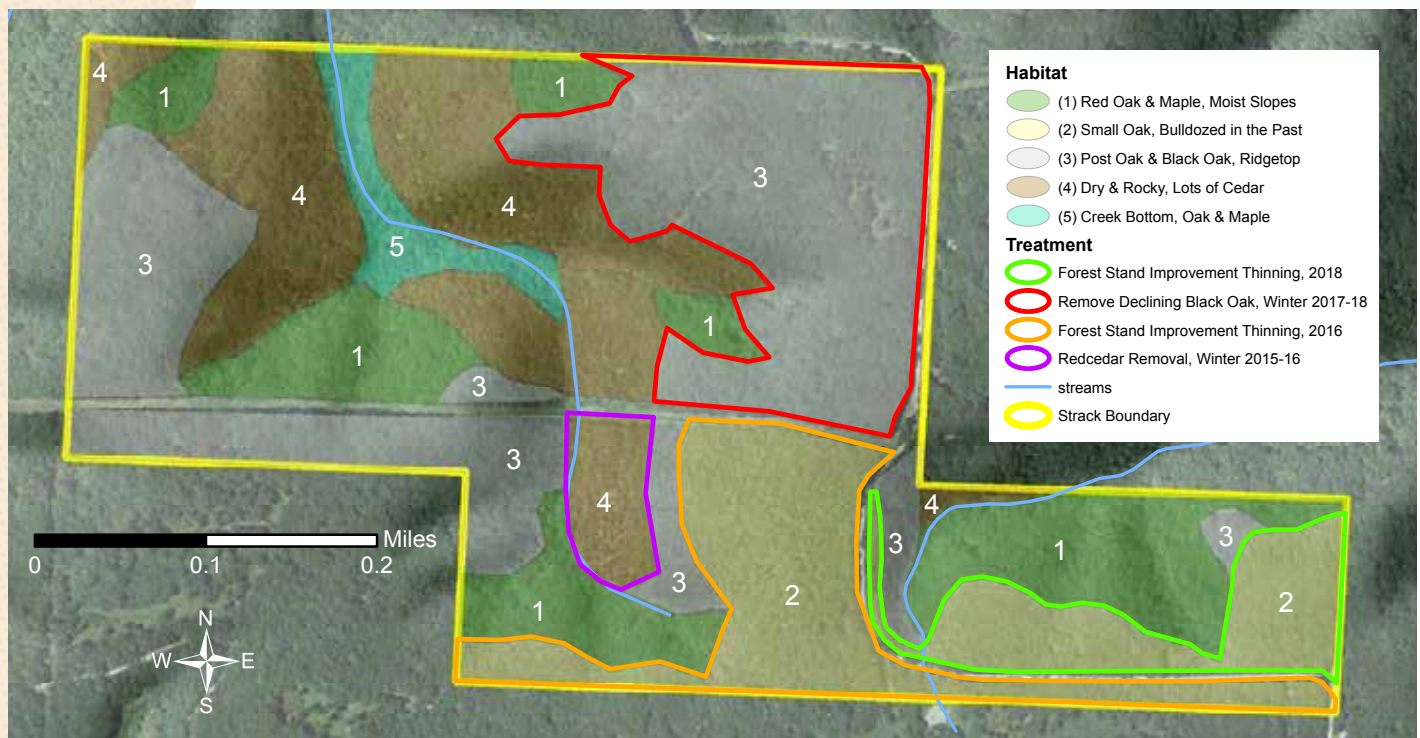
Managing land enrolled in MMW must be sustainable and guided by the goals and objectives of the landowner, as well as the condition of the trees present. After assessing the woods, a professional forester will write a plan that outlines activities

designed to help achieve the landowner's goals, while maintaining or improving the health of forest. Examples of goals are improving habitat for various kinds of wildlife and growing quality timber to maximize revenue. Often, several goals may be achieved at the same time.

Properly tended woodlands produce quality products, much the same as any other agricultural crop. Areas with few trees sometimes require planting. Crowded areas often need thinning to eliminate poorly formed trees or undesirable species. Since there is often considerable variation in the types and ages of trees present, soil types, and other characteristics, each part of the woods must be considered separately. Then improvement activities may be tailored to each situation.

The 120 acres shown on the map below contains five different types of forest conditions ranging from dry ridgetop areas to bottomlands along a creek. Each type is suited to a different group of trees and other plants. Areas outlined in color show places that have been treated in the past few years to improve wildlife habitat and the health of the forest. Activities include removing red cedar trees from a dry, west-facing slope, which allowed native flowers and grasses to grow in the increased light, and conducting a commercial timber sale, which removed overmature, low-quality black oak trees, creating conditions favorable to the growth of new tree seedlings.

Aerial map from 2016 of Larry Strack's 120 acres of woods, showing the various combinations of vegetation and growing conditions. Declining black oaks were harvested from the area, outlined in red, during winter of 2017-2018. The results of the timber harvest are shown on the previous pages.







Landowner Larry Strack and MDC forester Scott Hollabaugh discuss implementation of his forest stewardship plan. The plan guides work to improve the woods and achieve Strack's goals for his land.

## Landowner Success: Larry Strack

Larry Strack was the first landowner enrolled in MMW. He enrolled in December 2017, after learning about the program through his membership in the American Tree Farm® program and from his contact with MDC staff. Strack has been working with conservation professionals, including MDC foresters and private lands staff, private consulting foresters, and Natural Resources Conservation Service (NRCS) on his 120-acre farm since 2004 when his first forest stewardship plan was written.

Strack owns his land for recreational purposes.

"I enjoy bowhunting and firearms hunting for deer and turkey," Strack said. "I also squirrel hunt, take the grandkids fishing, hunt for mushrooms, pick blackberries, and watch and photograph wildlife."

Strack has a comprehensive plan for managing his woods, which guides his conservation activities.

"My goal is to improve wildlife habitat and water quality, reduce erosion, improve forest health and production, and leave a legacy for my children and grandchildren," Strack said.

With the help of MMW, Strack has completed several projects to accomplish these goals. Some he has done himself, some with family and neighbors, and those that are beyond his capacity, he enlisted the aid of contractors.



Sprouts grow from the stump of a recently harvested black oak tree. The tree's root system is still alive and in place. This allows the sprouts to grow faster and helps protect water quality by keeping the soil on the harvested site from being carried into nearby streams. After a few years, the dominant sprout, which will become the new tree, should be identified and the rest of the sprouts removed from the stump.



## Landowner Success:

### The Haake Family

When Joe Haake Sr. bought 640 acres of mostly cut-over mid-Missouri timber land in 1961, he knew very little about managing a large tract of woods. He had bought the land as a place to hunt and as a weekend retreat from the city. Over time, weekend camping trips with his teenage son, Joe Haake Jr., began to include mowing, clearing some brush, and cutting down unwanted trees around the favored camp site. The work began to expand across the property. Old logging skid trails were expanded into a road network. Two years after buying the land, the entire property was burned by a wildfire. By 1966, Haake Sr. had learned about the enhanced fire protection offered to lands in the FCL program and soon enrolled his land.

As time passed, the land healed, ponds for wildlife were built, some pines were planted, and the native oaks and hickories regenerated after the period of intense burning ended. Meanwhile, the Haakes learned more about forestry from a local sawmill owner who was also a professional forester. In the mid-1980s, a detailed inventory and map was made of the property. This effort laid a foundation for more scientific

management of the woods. The trees had grown enough to make forest stand improvement thinning cuts possible. The property was enrolled in the American Tree Farm System® in 1986, and Haake Sr. was named State and then U.S. Regional Tree Farmer of the Year in 1988. The property was reenrolled in FCL for a second 25-year period in 1992.

Ownership of the land passed to Haake Jr. in the 1990s, and the commitment to good forestry work continued. Selective logging, guided by consulting and MDC foresters, has continued on the property, always with the purpose of improving the overall quality of the woods, both for timber and to create better wildlife habitat.

Raised on the property, as was his father Haake Jr. before him, Mike Haake, the third generation of the family, assumed ownership of the property in 2010.

“My grandfather’s goal in managing the property was not short-term,” said Mike Haake. “It was always long-term, looking ahead 20 to 50 years.”

Mike continues the same approach. After the property expired out of the FCL program in 2017, it was enrolled in MMW in early 2018. Haake’s young family now spends weekends carrying on traditions begun over 50 years ago in the woods of mid-Missouri.



Three generations of the Haake family enjoy time in the woods on the property that has been in their family since 1961. Spending time, both working and recreating, on their land has become a family tradition. These values are being passed along to the newest generation as well.







Joe Sr. and Joe Jr. plant an open area in 1971 (above). Pictured right, Joe Jr. (middle) stands amongst a stand of 47-year-old trees, planted in 1971.



Current owner Mike Haake, his father and previous owner Joe Haake Jr., and MDC forester Lance Bushan review the forest stewardship plan for the property. Forest management plans blend the landowner's objectives with the resources present to improve forest health and achieve the goals when possible.

To learn more about Missouri Managed Woods, visit [short.mdc.mo.gov/Zcr](https://short.mdc.mo.gov/Zcr).

Steve Westin is MDC Forestry Division's private land program supervisor and has worked for MDC for nearly 29 years. He enjoys helping people learn how to manage their woods.



Missouri Department of Conservation

### Program Requirements

- Participating tracts must be a minimum of 20 contiguous acres of wooded land.
- To be enrolled, land must have a market value of less than \$3,500 per acre.
- The landowner must agree to a 15-year enrollment commitment, optionally renewable upon expiration.
- Land containing structures (houses, barns, sheds) and lakes may not be enrolled in the program due to property tax considerations.

### Program Benefits

- Priority assistance from a professional forester.
- A forest management plan based on the landowner's goals and objectives and the condition of the woods.
- Timber sale assistance when suited to resource conditions and the landowner's desired outcomes.
- Increased cost-share rate to assist with forest management practices.
- Property tax reduction.
- Forest certification through the American Tree Farm System®.
- A timber basis evaluation when needed and appropriate.

### Landowner Obligations

- Sign the management plan and agree to implement it, showing progress within five years.
- Enroll in the American Tree Farm System®.
- Mark property boundaries clearly.
- Fence livestock out of the woods.



# Get Outside

in NOVEMBER

Find more events in your area  
at [mdc.mo.gov/events](http://mdc.mo.gov/events)

→ Ways to connect  
with nature

## Pick Pecans

Pecans are ripe for the picking! Brush off your favorite recipes. If you need some inspiration, visit [short.mdc.mo.gov/Z3U](http://short.mdc.mo.gov/Z3U).



## Red Admiral Butterfly

Look for red admiral butterflies through November. They frequent woody and grassy areas and gardens, especially in late afternoon and dusk. Males perch on trees and shrubs as they watch for females, but this time of year, they may be more interested in flying south for the winter.



### SOUTHEAST REGION

## Feeding Frenzy

Thursday, Nov. 8 • 1-2 p.m.  
Cape Girardeau Conservation Nature Center  
2289 County Park Drive,  
Cape Girardeau, MO 63701  
No registration required.  
Call 573-290-5218 for more information  
All ages

Ever wonder what it takes to keep all the nature center reptiles, amphibians, and fish happy? Thanks to some amazing animal care volunteers, they are fed a delicious smorgasbord of crickets, worms, minnows, and more! Drop by to visit with the volunteers and staff as they feed the hungry critters.

## Look Up

As you are walking in the woods this fall, look up amongst the leafless trees. You may spot a **bald-faced hornets' nest**. These large, rounded, papery, gray nests are often used in natural history displays. **Bald-faced hornets** chew on wood and mix it with their saliva to construct their nests.



### Natural Events to See This Month

Here's what's going on  
in the natural world.



Voiles and mice feed  
on grass and seeds  
under the  
snow.



Female  
black  
bears are  
in their  
winter  
dens



Look  
for frost  
flowers  
with the  
first hard  
frost





Northern cardinal

## Hangry Birds

Birds are gathering at stations this time of year. Are you prepared? If you need help getting your feeders set up, visit [short.mdc.mo.gov/ZpZ](http://short.mdc.mo.gov/ZpZ).

### ST. LOUIS REGION

## Hiking: Turkey Trek

Saturday, Nov. 17 • 1-3 p.m.

Rockwoods Reservation

2751 Glencoe Road, Wildwood, MO 63038

Registration required. Call 636-458-2236 starting Nov. 1

All ages

Join us for an invigorating mid-November hike of the Turkey Ridge Trail (moderate 2.0 miles with hills). As we progress along the trail, we will talk about the habitat, food, habits, and calls of wild turkeys. If we are really lucky, we may even see or hear some wild turkeys.



Wild turkeys



Hellbender eggs begin hatching



Listen for the cricket's last call

# DISCOVER NATURE

## WITH THE 2019 NATURAL EVENTS CALENDAR

Our ever-popular calendar keeps you in touch with the year's seasonal changes. Each month offers a reminder of the state's natural treasures. Daily notes keep you posted on what's blooming or nesting and myriad other natural phenomena.

10x 14 inches when folded  
20x 14 inches when open for full display

\$9



Get your copy today at  
**[mdcnatureshop.com](http://mdcnatureshop.com)**  
or call 877-521-8632.



# Places to Go

## NORTHEAST REGION

### Rebel's Cove Conservation Area

Civil War orator gives area history, name

by Larry Archer

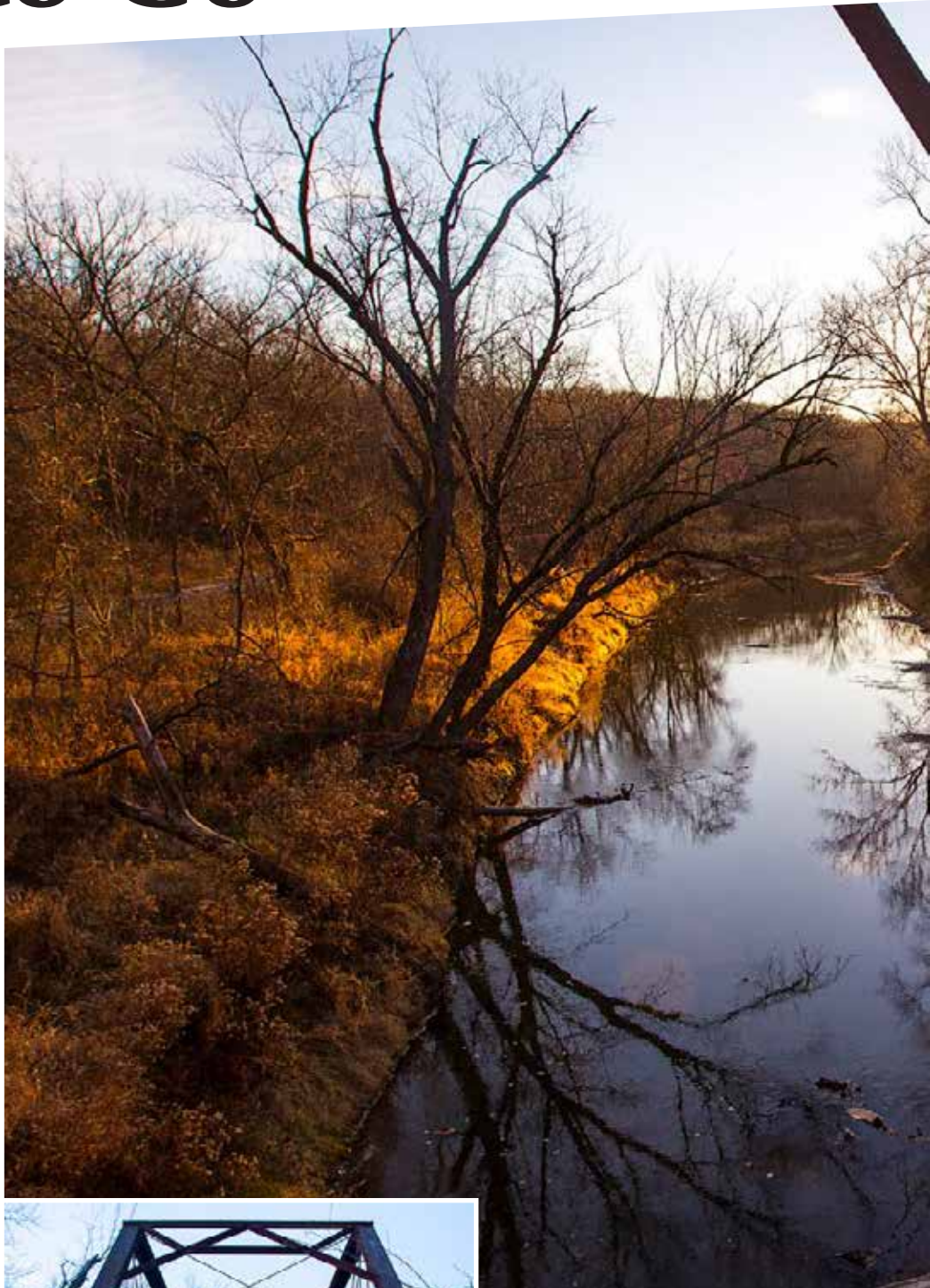
✧ By November, copperheads this far north in Missouri are scarce, but at Rebel's Cove Conservation Area (CA), signs of the area's most famous Copperhead abound.

Located on 4,225 acres in Putnam and Schuyler counties, the area was once the home of Civil War minister, orator, and politician Henry Clay Dean. A vocal critic of President Abraham Lincoln, Dean was labeled a Copperhead, a term used for northern Democrats opposed to the war. The area's name is drawn from references in Dean's writings, according to Wildlife Management Biologist Ryan Jones, Rebel's Cove CA manager.

"About 200 acres of the area was his original homestead," Jones said. "He's buried on-site. One of his famous speeches or one of his publications made a reference to Rebel's Cove. That's where the name came from."

If not looking for copperheads of either variety, one still has the opportunity to see any number of migrating waterfowl taking advantage of the wetlands created by the Chariton River, he said.

"We have about 200 acres of man-made wetlands and then another 80 acres of seasonal wetlands along the river," Jones said. "They're not intensively managed. They're all passive catch. If it rains, we've got water."



"It's the longest stretch of the Chariton River that's not channelized. We try to protect and enhance the natural communities that go with that, which are mainly wetlands and forests."

—Rebel's Cove CA Manager  
Ryan Jones





## REBEL'S COVE CONSERVATION AREA

consists of 4,225 acres in Putnam  
and Schuyler counties. From Livonia,  
take Route N north 4.6 miles.

N40° 32' 57.48" | W92° 43' 41.52"

[short.mdc.mo.gov/Zqt](http://short.mdc.mo.gov/Zqt) 660-785-2420

### WHAT TO DO WHEN YOU VISIT



**Bird-Watching** The eBird list of  
birds recorded at Rebel's Cove CA is  
available at [short.mdc.mo.gov/ZqF](http://short.mdc.mo.gov/ZqF).



**Camping** Designated camping sites. Open  
camping — walk-in, float-in, backpack.



**Fishing** Black bass, catfish, sunfish



**Hiking** Area trails and levees give hikers access  
to forested areas and several wetland pools.



**Hunting Deer and turkey.** Deer and turkey  
regulations are subject to annual changes.  
Please refer to the *Spring Turkey* or *Fall Deer  
and Turkey* booklets for current regulations.  
Also dove, quail, rabbit, and squirrel.



**Waterfowl Hunting** Open hunting.  
Waterfowl regulations are subject to  
annual change, so refer to the *Waterfowl  
Hunting Digest* for current regulations.

### WHAT TO LOOK FOR WHEN YOU VISIT



American beaver



Gadwall



American white  
pelican



White-tailed deer





## Boxelder Bug

*Boisea trivittata*

Status	Size	Distribution
Common	Length: to ½ inch	Statewide



### Did You Know?

Boxelder bugs live on or near their favorite food source — box elder trees — but don't be alarmed. You may see high numbers of these bugs in the fall, but they pose no danger to humans, pets, or buildings.

**B**oxelder bugs are harmless black insects with flattened backs and distinctive red markings. You may find them swarming on the warm, south-facing side of your home this time of year as they seek shelter for the winter. They go dormant as the weather gets colder, but if they are warmed by your home's heating, they may revive, mistaking the warmth for springtime.



### LIFE CYCLE

Boxelder bugs go through several immature stages before becoming winged, mature adults. In autumn, large nymphs and adults gather in the nooks of box elder bark, under the siding of homes, and similar places to prepare for overwintering. At the end of March, they emerge and begin laying eggs at the end of April in crevices of box elder tree bark.



### FOODS

Their preferred food is box elder (*Acer negundo*), though they are sometimes found on other maples, especially silver maples, and ash trees. Generally, they feed on the soft, leafy parts of trees. Boxelder bugs have strawlike mouthparts, similar to cicadas, for sucking juices from the tender leaves and seeds of their host trees. Despite their feeding habits, boxelder bugs rarely damage trees.



### ECOSYSTEM CONNECTIONS

Boxelder bugs have red markings that form an X, almost as a warning to predators that they are distasteful. Many predators, such as praying mantises and spiders, eat them anyway.



# Outdoor Calendar

MISSOURI DEPARTMENT OF CONSERVATION

## FISHING

### Black Bass

Impounded waters and non-Ozark streams:  
Open all year

Most streams south of the Missouri River:  
May 26, 2018–Feb. 28, 2019

### Nongame Fish Giggling

Streams and Impounded Waters,  
sunrise to midnight:  
Sept. 15, 2018–Jan. 31, 2019

### Paddlefish

On the Mississippi River:  
March 15–May 15, 2018  
Sept. 15–Dec. 15, 2018

### Trout Parks

Catch-and-Release:  
Nov. 9, 2018–Feb. 11, 2019

## TRAPPING

### Beaver, Nutria

Nov. 15, 2018–March 31, 2019

### Other Furbearers

Nov. 15, 2018–Jan. 31, 2019

### Otters, Muskrats

Nov. 15, 2018–Feb. 20, 2019

### Rabbits

Nov. 15, 2018–Jan. 31, 2019

### Free MO Hunting and MO Fishing Apps

MO Hunting makes it easy to buy permits, electronically notch them, and Telecheck your harvest. MO Fishing lets you buy permits, find great places to fish, and ID your catch. Get both in Android or iPhone platforms at [short.mdc.mo.gov/Zi2](http://short.mdc.mo.gov/Zi2).

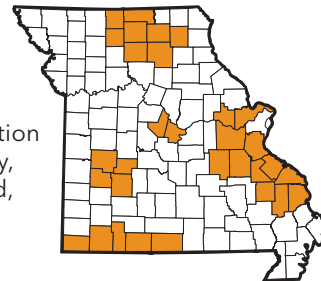


For complete information about seasons, limits, methods, and restrictions, consult the *Wildlife Code of Missouri* at [short.mdc.mo.gov/Zib](http://short.mdc.mo.gov/Zib). Current hunting, trapping, and fishing regulation booklets are available from local permit vendors or online at [short.mdc.mo.gov/ZZf](http://short.mdc.mo.gov/ZZf).

## Reminder to Deer Hunters

MDC is conducting mandatory CWD sampling of harvested deer in 31 select counties opening weekend of the fall firearms deer season, Nov. 10 and 11. Hunters must take deer to a sampling station if harvested in the following counties: Adair, Barry, Bollinger, Cape Girardeau, Cedar, Cole, Crawford, Franklin, Grundy, Hickory, Jefferson, Knox, Linn, Macon, Madison, McDonald, Mercer, Moniteau, Ozark, Perry, Polk, Putnam, St. Charles, St. Clair, St. Francois, Ste. Genevieve, Stone, Sullivan, Taney, Warren, and Washington.

Find mandatory CWD sampling stations and other related information about CWD online at [mdc.mo.gov/cwd](http://mdc.mo.gov/cwd) and in our *2018 Fall Deer & Turkey Hunting Regulations and Information* booklet, available where permits are sold and online at [short.mdc.mo.gov/ZZf](http://short.mdc.mo.gov/ZZf).



## HUNTING

### Coyote

Restrictions apply during April, spring turkey season, and firearms deer season.

Open all year

### Crow

Nov. 1, 2018–March 3, 2019

### Deer

Archery:

Sept. 15–Nov. 9, 2018

Nov. 21, 2018–Jan. 15, 2019

Firearms:

- ▶ November Portion:  
Nov. 10–20, 2018
- ▶ Late Youth Portion (ages 6–15):  
Nov. 23–25, 2018
- ▶ Antlerless Portion (open areas only):  
Nov. 30–Dec. 2, 2018
- ▶ Alternative Methods Portion:  
Dec. 22, 2018–Jan. 1, 2019

### Dove

Sept. 1–Nov. 29, 2018

### Groundhog (woodchuck)

May 7–Dec. 15, 2018

### Other Furbearers

Nov. 15, 2018–Jan. 31, 2019

### Pheasant

Regular:

Nov. 1, 2018–Jan. 15, 2019

### Quail

Regular:

Nov. 1, 2018–Jan. 15, 2019

### Rabbit

Oct. 1, 2018–Feb. 15, 2019

### Sora, Virginia Rails

Sept. 1–Nov. 9, 2018

### Squirrel

May 26, 2018–Feb. 15, 2019

### Turkey

Archery:

Sept. 15–Nov. 9, 2018

Nov. 21, 2018–Jan. 15, 2019

### Waterfowl

See the Waterfowl Hunting Digest or visit [short.mdc.mo.gov/ZZx](http://short.mdc.mo.gov/ZZx) for more information.

### Wilson's (Common) Snipe

Sept. 1–Dec. 16, 2018

### Woodcock

Oct. 15–Nov. 28, 2018



ILLUSTRATION: MARK RAITHEL





**Follow us  
on Instagram**

@moconservation

This is a barred owl, the only large, brown-streaked, dark-eyed owl in Missouri. It may be more often heard than seen. Its call, though hard to locate, is the familiar question: Who cooks for you? Who cooks for you all? The barred owl forages during the night and often even during the day. If you find yourself in its preferred stomping grounds—along forested streams, lakes, rivers, swamps, or in deep wooded areas—you may just get a glimpse of this elusive raptor.

📷 by **Noppadol Paothong**

Subscribe online | [mdc.mo.gov/conmag](https://mdc.mo.gov/conmag) | Free to Missouri households